



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/038,512	10/19/2001	Soren A. Rasmussen	2954/1J910-US1	5999
7278	7590	11/16/2005	EXAMINER	
DARBY & DARBY P.C. P. O. BOX 5257 NEW YORK, NY 10150-5257			BARAN, MARY C	
			ART UNIT	PAPER NUMBER
			2857	

DATE MAILED: 11/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/038,512

Applicant(s)

RASMUSSEN ET AL.

Examiner

Mary Kate B. Baran

Art Unit

2857

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 August 2005.
2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22, 25-34 and 41 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) 1-22 and 41 is/are allowed.
6) ☒ Claim(s) 25-34 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 05 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The action is responsive to the Amendment filed on 31 August 2005. Claims 1-22, 25-34 and 41 pending. Claims 1, 4, 7, 11, 16, 21 and 22 are amended. Claims 23, 24 and 35-40 are cancelled. Claim 41 is new.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Denmark on 9 August 2001. It is noted, however, that applicant has not filed a certified copy of the foreign application as required by 35 U.S.C. 119(b).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 25-29, and 31-34 are rejected under 35 U.S.C. 102(e) as being anticipated by Schneider et al. (U.S. Patent No. 6,718,533).

Referring to claim 25, Schneider teaches an automatic machinery fault diagnostic method and procedure for machines or one or more components thereof (see Schneider, column 13 lines 15-58), characterized by using a machinery fault class

Art Unit: 2857

library (see Schneider, column 25 lines 21-40) including references to specific signatures calculated from signals acquired from sensors (see Schneider, column 23 lines 2-18) placed at specific locations on said machine (see Schneider, column 25 lines 5-47).

Referring to claim 26, Schneider teaches references to specific signatures for each fault class (see Schneider, column 13 lines 38-44).

Referring to claim 27, Schneider teaches using a combination of unique fault signatures measured at specific machine states (see Schneider, column 13 lines 38-44).

Referring to claim 28, Schneider teaches determining the machine states by virtual measurements in a signal processing unit or acquired from external systems (see Schneider, column 13 lines 20-35).

Referring to claim 29, Schneider teaches determining the machine states by virtual measurements in a signal processing unit by using a predetermined monitoring strategy as to when and how often to collect data (see Schneider, column 12 lines 23-36).

Referring to claim 31, Schneider teaches using a fault class method in terms of a formal diagnostic language comprising mathematical operations or logic (see Schneider, column 12 lines 15-21).

Referring to claims 32 and 33, Schneider teaches instantiating a diagnostic fault method object per signature, per component, per machine, adapted by entering machine specific information (see Schneider, column 11 lines 8-15).

Referring to claim 34, Schneider teaches a diagnostic class method being editable in terms of modifications and expansions; modifications being instantaneously applied to associated object methods.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schneider et al. (U.S. Patent No. 6,718,533) (hereinafter Schneider) in view of Quist et al. (U.S. Patent No. 6,199,018) (hereinafter Quist).

Referring to claim 30, Schneider teaches all the features of the claimed invention but does not teach using an event controlled data communication strategy from said

signal processing unit for communication with a server, only data including new information being communicated to said server.

Quist teaches using an event controlled data communication strategy from said signal processing unit for communication with a server, only data including new information being communicated to said server (see Quist, column 5 line 51 – column 6 line 6).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Schneider to include the teachings of Quist because sending new data to the server would have allowed the skilled artisan to generate updated comparison data for use in determining and predicting the operation and failure of the machines (see Quist, column 5 line 62 – column 6 line 6).

Allowable Subject Matter

5. Claims 1-22 and 41 are allowed.

6. The following is a statement of reasons for the indication of allowable subject matter:

Claims 1-22 and 41 are allowable over the prior art of record because a method of automatic fault diagnosis for each of a plurality of components of machines, calculating for each of a plurality of symptoms for indicating a fault, a symptom value and a symptom severity value as the function of a reduced data set calculated from measured data as a measure of the deviation of the measured data from base line values; obtaining a total fault symptom strength value from the symptom value and the

symptom severity value indicating the strength of the fault is not found, taught, or suggested in the prior art of record.

Response to Arguments

7. Applicant's arguments filed 31 August 2005 have been fully considered but they are not persuasive.

Applicant argues that Schneider does not teach, "using a Machinery Fault Class Library including references to specific signatures calculated from signals acquired from sensors placed at specific locations on said machine." However, Applicant's arguments are not well taken. Schneider teaches a user defined database, or library, (see Schneider, column 25 lines 22-40). This database comprises data gathered from sensors located at various areas on the machine (see Schneider, column 25 lines 5-21) and used to calculate positions and trajectory (see Schneider, column 23 lines 2-19). This gathered and calculated data is then labeled by the user for future use (see Schneider, column 25 lines 5-47). Therefore, Schneider teaches using a library (see Schneider, column 25 lines 22-40) including references to specific signatures calculated from signals acquired from sensors (see Schneider, column 23 lines 2-19) placed at specific locations on said machine (see Schneider, column 25 lines 5-21).

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary Kate B. Baran whose telephone number is (571) 272-2211. The examiner can normally be reached on Monday - Friday from 9:00 am to 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (571) 272-2216. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2857

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

5 November 2005


MARC S. HOFF
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800